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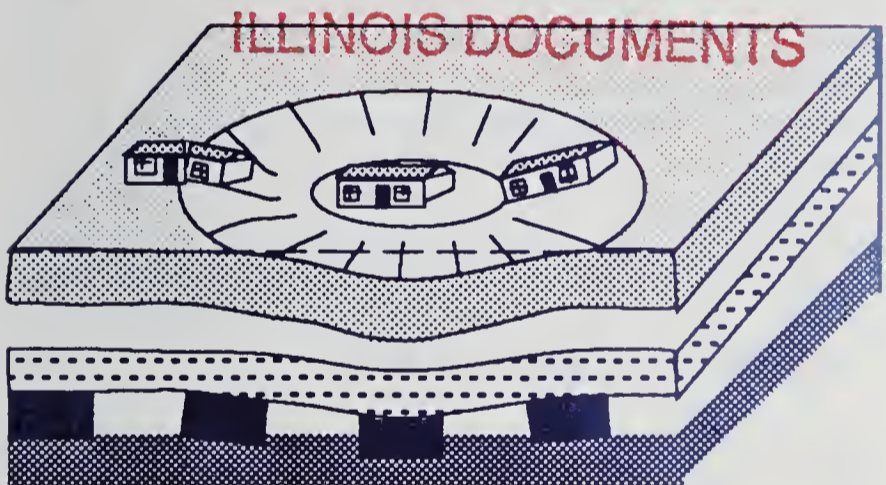
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A HOMEOWNER'S GUIDE TO MINE SUBSIDENCE IN ILLINOIS

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State of Illinois
Abandoned Mined Lands Reclamation Council

Lt. Governor Bob Kustra
Chairman

Timothy J. Hickmann
Executive Director

Cover figure illustrates a form of mine failure and
resulting sag-type subsidence.

UNIVERSITY OF ILLINOIS-URBANA



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INTRODUCTION

This brochure has been prepared by the Abandoned Mined Lands Reclamation Council (AMLRC) and is intended to provide homeowners with general advice and answers to commonly asked questions concerning sag-type coal mine subsidence. Although this document is general in nature, hopefully it will serve as a reference guide to assist the homeowner in collecting the necessary information to make informed decisions and fulfill individual needs. Answers to specific technical questions can be addressed by asking field personnel or by contacting staff at the phone numbers listed in this brochure.

WHAT IS MINE SUBSIDENCE?

Many Illinois homeowners might be surprised to learn that Illinois is one of the largest coal-producing states in the nation. Over 800,000 acres across the state have been undermined for coal. The underground mining of coal and other minerals creates voids which are subject to collapse. The collapse of these voids may occur at any time ranging from immediate (i.e., while the mineral is being extracted) to 100 or more years after mining. If the collapse causes sinking of the ground surface, the settlement is called mine subsidence. There are two forms of mine subsidence which in Illinois are referred to as pit and sag. Pits are steep-sided holes that form over mines that are less than 180 feet deep. Most pits are less than 16 feet in diameter and 8 feet deep but range between 2 and 40 feet in diameter and 2 and 25 feet in depth. In many instances pits do not cause structural damages to homes provided they are filled promptly. For this reason, the remainder of this pamphlet will concentrate on sag-type subsidence.

Sags are large, relatively shallow depressions that form in the ground surface as a result of failures within underground room and pillar mines. Commonly they are elliptically shaped and range in size from 350 to 450 feet in diameter, but they can be substantially larger or smaller.

Within the subsiding area of a sag, the ground gently bends or warps downward forming a bowl-shaped depression. Vertical settlements range from barely perceptible near the outer edge to approximately 1 to 3 feet near the center. The amount of settlement is largely dependent on the local geological and mine conditions. Field personnel will be able to provide you with an estimate for your particular site location.

Currently, it is not possible to predict precisely how long a mine subsidence event will last. We do know, based on experience, that 60 to 90 percent of the total ground movement occurs within the first few weeks of an event. The remaining ground movement continues to develop at a continually decreasing rate and may take 3 to 5 years, or longer, to reach completion. Field personnel may be able to provide you with rough estimates as to whether a mine subsidence event appears to be relatively fast (1 to 2 years), average (3 to 5 years), or slow (6+ years).

IN CASE OF SUBSIDENCE WHOM SHOULD BE CONTACTED?

The first thing a homeowner should do once subsidence damage is suspected is to request the Abandoned Mined Lands Reclamation Council (AMLRC) to investigate and evaluate the damages to determine if hazardous conditions exist. In addition to contacting the Council, the homeowner should determine if his/her insurance policy insures for losses due to mine subsidence and file a claim with his/her insurance agent. The agent, through the homeowner's insurance company (INSURER), will in turn notify the Illinois Mine Subsidence Insurance Fund (FUND) and inform them that an insurance claim has been submitted. Once contacted, both the AMLRC and FUND will function autonomously and independently collecting data in order to perform their respective duties in providing homeowner assistance.

WHAT IS THE AMLRC?

The Abandoned Mined Lands Reclamation Council (AMLRC) is the state agency responsible for abating environmental and hazardous conditions associated with past coal mining activities. The governing body of the AMLRC is called the COUNCIL. Chaired by the Lieutenant Governor, the COUNCIL consists of the directors of seven State agencies: the Departments of Energy and Natural Resources, Mines and Minerals, Agriculture, Commerce and Community Affairs, Conservation, Capital Development Board, and the Environmental Protection Agency. An Executive Director manages the daily operations of the staff.

WHAT SERVICES ARE PROVIDED BY THE AMLRC?

One of the services provided under the program is an emergency response team. The team consists of engineers and geologists who specialize in analyzing subsidence damage and evaluating site conditions in terms of safety. In extreme subsidence cases, homes

can be severely damaged to the point where they become structurally unstable. In such instances, AMLRC personnel request federal officials from the Office of Surface Mining Reclamation and Enforcement (OSMRE) to make a determination as to whether the site conditions constitute an emergency as defined under federal regulations. Once the site is declared an emergency, AMLRC personnel design techniques to eliminate the hazard and initiate contracts to conduct the abatement work. Such work may include straightening and strengthening supports, installing support bracing and underpinning, and if necessary detaching and lifting the home off its foundation. If conditions warrant, the entire governmental process including site investigation and project design can be completed and abatement work initiated within 24 hours. The costs associated with the emergency abatement work are paid with federal funds that are administered through the AMLRC Emergency Program.

It should be noted that in most cases homes damaged by mine subsidence do not present life threatening conditions and, therefore, do not require emergency abatement procedures. In these instances the AMLRC will usually conduct a limited monitoring program to ensure public safety. The data collected during these investigations allows the AMLRC to provide the homeowner with site specific information that would otherwise not be possible. In addition, such investigations increase AMLRC knowledge and understanding of subsidence mechanics and related structural damage, which will be used in analysis of future subsidence events.

HOW IS THE SUBSIDENCE INSURANCE PROGRAM ADMINISTERED?

State law requires the insurance industry to provide mine subsidence insurance. The intent of the law was to make available, through the private sector, insurance that would protect the homeowner against property loss due to mine subsidence. The law also established a governing committee which has the authority to manage the Mine Subsidence Insurance Fund (FUND).

Every insurance company in Illinois has the responsibility to offer and service mine subsidence insurance coverage, to adjust the claim, and to notify the Illinois Mine Subsidence Insurance Fund (FUND) that an insurance claim has been submitted.

Among its responsibilities, the Fund provides reinsurance to all insurance companies offering mine subsidence coverage on permanent structures. The law defines structure as meaning any dwelling, building or fixture permanently affixed to realty located in Illinois including driveways, sidewalks, parking lots, basements, footings, foundations, septic systems and underground pipes directly servicing the dwelling or building. While it does not directly insure individuals, nor does it pay losses to individuals, it does provide technical support to insurance companies in the investigation of a mine subsidence loss. As reinsurer, the Fund reimburses insurance companies for losses they pay on damage caused by mine subsidence. Homeowners should contact their insurance company for information on limitations and for assistance in filing a claim.

Because of the unique responsibilities of the Fund, it also supports research into methods for more effective repair techniques. It is hoped that this research will result in repair methods that will allow the homeowner to make both better repairs that can sustain future mine subsidence movement and to make more effective use of the repair money.

The Fund can also provide information to the public about mine subsidence and how a mine subsidence loss is handled. Please contact the Fund for further information.

HOW BADLY WILL MY HOUSE BE DAMAGED?

The amount of damage sustained by a home is dependent upon several factors including construction characteristics of the home, the home location and orientation within the subsidence event, sag characteristics and any mitigative techniques employed to minimize or prevent damage. After the house is inspected by the AMLRC, field personnel will usually brief the homeowner as to the current damage levels to the home. In addition AMLRC personnel will provide, if asked, their estimate of possible future damage based on experience with other subsidence events.

WHAT ARE COMMON HOMEOWNER RESPONSIBILITIES AND DECISIONS?

The homeowner has many on-going responsibilities while the ground movements are active. Major areas of responsibilities include 1) making routine safety inspections and temporary repair, and 2) examining various financial and reconstruction options in order

to make informed decisions about the final repair of the home.

Safety inspections should include inspecting utilities such as gas, water, and sewer lines for leaks; functionality of doors, windows, and electric lines; and weather proofing.

Most gas leaks occur at the meter or where the gas line enters the house. For this reason, both AMLRC and FUND personnel routinely recommend to the local gas utility to install flexible couplings on the meter as a preventive measure. As an additional precaution, the property owner should also have a qualified contractor or individual free the gas line where it enters the home (if necessary). Interior gas line leaks are uncommon but can occur at locations within the house where lines are rigidly attached or extend through walls. Even with these precautionary measures, gas leaks outside the home can develop and periodic inspections by the homeowner should be made. If a gas leak is detected, immediately contact the local gas utility (exterior leak) or qualified individual (interior leak) to fix the leak. Similarly, stressed sewer, water, and electric lines can also break, and invariably, at locations where it is difficult to make repairs. For this reason, it may be preferable to make cuts in stressed utilities and install flexible connections at convenient locations prior to their breaking.

In some respects, utility breaks and leaks are less problematic than improperly functioning doors and windows. Unlike utility repairs, improperly functioning doors and windows require frequent and repeated adjustments. In fact, it is not uncommon for some doors and windows to suddenly start sticking and then function properly a few days later. Besides being inconvenient, improperly functioning doors present a hazard should a fire develop and should, therefore, be kept in proper working order. For these reasons, whenever possible, doors should be adjusted rather than planed (cut) when attempting to restore functionality. Unfortunately, windows tend to be more difficult and costly to adjust and as a result, many homeowners tend to live with the inconvenience until permanent repairs can be made. **Forcing windows open or closed can cause them to shatter violently with the potential for serious injury.** Waiting until the ground movements stop in order to reset windows is not always possible. In extremely severe cases, the distortions may be great enough to cause windows to shatter suddenly. Under these conditions, the potential for injury can be minimized by taping the glass in an

asterisk (*) pattern and closing the drapes or blinds. These techniques should be considered as a stop-gap solution until the windows can be reset or removed and the enclosure "boarded up".

Weatherproofing a home is recommended to minimize interior and exterior damages, maximize heating and cooling efficiency, and improve general comfort and aesthetics. Flexible materials are recommended for the temporary repair of cracks because of their ability to accommodate minor movements. The benefits of flexible materials include durability of repairs, limited stress buildup and transfer, possible water resistance, easy application, and reasonable cost. Relatively small masonry cracks can be sealed using a flexible caulk which usually has all of the above properties. Larger cracks and separations can be filled using sprayed foam insulation. Horizontal separations (gaps) may form between walls and foundations, walls and floors, or at the ends of column supports. Such separations can cause wall, floor or ceiling distortions and additional cracking. In some instances, some of the damage can be minimized or prevented by reestablishing proper support. Corrective measures may include shimming or adjusting column supports, or may require extensive bracing. Some of the temporary repair costs mentioned above may be covered under the subsidence insurance policy and would be deducted from the coverage.

Finally, it is realized that some persons may not know how to make such inspections. For this reason, AMLRC personnel may be able to assist the property owner making these detailed inspections when requested. Typical inspections made by AMLRC personnel are geared toward examining the stability of the structure and do not always include detailed inspection of each door and window. However, should such problems be observed during our inspection they are routinely brought to the attention of the homeowner.

HOME RECONSTRUCTION AND FINANCIAL OPTIONS. From a technical perspective, many of the cases involving sag subsidence are remarkably similar. It is the similarity between individual cases that allows researchers to predict, with reasonable certainty, the likely course of events. In some instances, this predictive capability allows AMLRC personnel to apprise the homeowner of technical solutions which may make it possible to prevent or minimize additional damages. The decision to commit considerable financial resources to prevent additional damages to a home that may already be significantly damaged is difficult and is usually a

personal decision based on finances rather than on technical considerations. Variations in individual insurance policies may carry certain limitations which the homeowner should explore in detail with the INSURER. Opportunities for minimizing and preventing damages and obtaining partial settlements may exist.

WILL MY HOUSE SUBSIDE AGAIN?

There have been no documented cases of sag type subsidence "reactivating" once the ground movements have ceased. Such a reoccurrence is believed to be extremely unlikely but technically possible. However in some areas in Illinois, multiple subsidence events have developed in such a manner that individual sag boundaries overlap slightly. Should your house be located near the edge of a sag, it is possible for it to sustain some damage from a second sag, should one develop, but such damages tend to be minimal under most conditions. The clustering of sag-type subsidence events has been observed in Vermilion, Sangamon, Montgomery, St. Clair, and Perry counties but occurs much less frequently than single, isolated events.

Conclusion

The AMLRC is the State agency with the authority and the funding mechanism to abate life threatening conditions related to abandoned mine subsidence. The responsibility for economic and repair decisions belongs to the homeowner who, hopefully, has minimum subsidence insurance. This brochure is intended to provide the homeowner with sufficient direction and background information to serve as a starting point in making future decisions.

This brochure was funded through grants from the Office of Surface Mining Reclamation and Enforcement (OSMRE). The information contained herein does not necessarily reflect the views of the OSMRE.

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